

Appl. No. 10/601,135  
Amdt. dated May 5, 2005  
Reply to Office Action of March 9, 2005

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-10 (cancelled).

Claim 11 (previously presented): A method for controlling a treatment unit for treating at least one feed gas, comprising the following steps:

- (i) providing a pressure swing adsorption (PSA) treatment unit;
- (ii) supplying a product gas from the treatment unit which is operating on a parameterized cycle; and
- (iii) utilizing a control unit to control the treatment unit.

Claim 12 (previously presented) The method according to Claim 11, wherein said treatment unit consists of N adsorption units.

Claim 13 (previously presented): The method according to Claim 12, wherein said adsorption unit consists of at least one selected from the following: R1, R2, R3, R4, R5, and R6 units.

Claim 14 (previously presented): The method according to Claim 11, wherein said control unit modifies at least one parameter of the feed gas, and/or the product gas.

Claim 15 (previously presented): The method according to Claim 14, wherein said control unit receives a pre-established signal comprising a change in the process parameter.

Claim 16 (previously presented): The method according to Claim 15, wherein said control unit processes said signal to determine the parameters of an exceptional operating cycle.

Claim 17 (previously presented): The method according to Claim 16, wherein said signal is subject to a predicted change of the operating cycle.

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Claim 18 (previously presented): The method according to Claim 15, wherein intensity of said signal is subject to a change in the composition of the feed gas.

Claim 19 (previously presented): The method according to Claim 11, wherein said control unit comprises a constant reference signal.

Claim 20 (previously presented): The method according to Claim 19, wherein said reference signal is modified to form a pre-established signal when there is a predicted change.

Claim 21 (previously presented): The method according to Claim 15, wherein said pre-established signal is subject to the operation of at least one upstream unit of the treatment unit.

Claim 22 (previously presented): The method according to Claim 15, wherein said pre-established signal comprises partially of the feed gas to be treated.

Claim 23 (previously presented): The method according to Claim 16, wherein said exceptional cycle consists of a predetermined duration.

Claim 24 (previously presented): The method according to Claim 16, wherein the duration of said exceptional cycle is transmitted to the control unit via an end signal.

Claim 25 (previously presented): The method according to Claim 24, wherein said end signal is pre-established subject to a predicted change in the composition of the feed gas.

Claim 26 (previously presented): The method according to Claim 11, wherein said parametrized operating cycle of the treatment unit comprises the following:

- (i) a phase of adsorption;
- (ii) a phase of regeneration; and
- (iii) repressurization.

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Claim 27 (previously presented): The method according to Claim 26, wherein said phase of adsorption occurs at a high pressure of the cycle.

Claim 28 (previously presented): The method according to Claim 26, wherein said phase of regeneration comprises a step of depressurization down to a low pressure of the cycle.

Claim 29 (previously presented): The method according to Claim 26, wherein said repressurization occurs at the high pressure of the cycle.

Claim 30 (previously presented): The method according to Claim 15, wherein said parameters are selected from either the duration of the phase time ( $T\phi^{exc}$ ) and/or the duration of at least one step from a regeneration phase.

Claim 31 (currently amended): The method according to Claim 11, wherein the method comprises the following steps:

- i) sending a signal regularly to the control unit that represents the flow rate and/or the density of the feed gas;
- ii) determining the parameters of an exceptional operating cycle of the treatment unit; and
- iii) adjusting the parameters on the basis of the signal representing the flow rate and/or the density of said feed gas.

Claim 32 (currently amended): The method according to Claim 11, wherein the method comprises the following steps:

- i) sending a signal regularly to the control unit that represents the flow rate and/or the composition of the product gas;
- ii) determining the parameters of the an exceptional operating cycle of the treatment unit; and
- iii) adjusting ~~these~~ the parameters on the basis of the signal representing the flow rate and/or the composition of said product gas.

Claim 33 (previously presented): A method for controlling a treatment unit for treating at least one feed gas, comprising the following steps:

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- (i) providing a pressure swing adsorption (PSA) treatment unit;
- (ii) supplying a product gas from the treatment unit which is operating on a parameterized cycle; and
- (iii) utilizing a control unit to control the treatment unit;

wherein said method comprises of a treatment unit that consists of N adsorption units selected from the following group: R1, R2, R3, R4, R5, and R6 unit, and whereby said control unit modifies at least one parameter of the feed gas, and/or the product gas.

**Claim 34 (previously presented):** A method for controlling a treatment unit for treating at least one feed gas, comprising the following steps:

- (i) providing a pressure swing adsorption (PSA) treatment unit;
- (ii) supplying a product gas from the treatment unit which is operating on a parameterized cycle; and
- (iii) utilizing a control unit to control the treatment unit;

wherein said treatment unit consists of N adsorption units selected from the following group: R1, R2, R3, R4, R5, and R6 units, and

whereby said control unit modifies at least one parameter of the feed gas, and/or the product gas and receives a pre-established signal comprising a change in the process parameter, and whereby said control unit processes said signal to determine the parameters of an exceptional operating cycle, and wherein said signal is subject to a predicted change in the operating cycle.

Claim 35 (previously presented): The method according to Claim 11, wherein the treatment unit produces hydrogen.

Claim 36 (previously presented): The method according to Claim 35, wherein the treatment unit produces substantially pure hydrogen.

**Claims 37-38 (cancelled)**